THE ANALYSIS OF SAVING BEHAVIOR: THE CASE OF RURAL HOUSEHOLDS IN THE PHILIPPINES

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THE ANALYSIS OF SAVING BEHAVIOUR: THE CASE OF RURAL HOUSEHOLDS IN THE PHILIPPINES*

by

Jocelyn Alma A. Rodriguez and Richard L. Meyer**

I. INTRODUCTION

There is a close link between rural savings mobilization and the process of economic development especially in countries where the agricultural sector holds a key position in the overall economy. Savings can be mobilized through voluntary or involuntary strategies. The former consists mainly of providing opportunities and incentives to encourage savings whereas the latter essentially involves raising taxes.

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**Respectively, Senior Planning Officer, ACPC and Professor, OSU. The views expressed in this study are those of the authors and do not necessarily reflect those of the Institute.

For the past two decades, policymakers and financial intermediaries in the Philippines and other low-income countries have generally neglected voluntary rural savings mobilization in financial policy-making and rural development strategizing. This has been due mainly to the precedence of the traditional view that rural households cannot save because they are poor (Adams, 1978; Von Pischke, 1978).

Governments have often believed that the best way to help the rural poor is to provide them with external financing at subsidized interest rates so that small farmers may be able to acquire modern farming inputs, utilize the associated improved methods, increase their production, raise their incomes and eventually, improve the quality of their lives. The function of rural financial markets in these countries have been seen as confined mainly to the process of channelling credit to the rural poor at concessionary interest rates. The Philippines in particular, experienced a deluge of government agricultural credit programs in the 1970s such as Masagana 99 for rice, Gulayan sa Kalusugan for vegetables, Bakahang Barangay for livestock and many others.

The popularity of the cheap credit policy however, was short-lived. It prevailed in the country for a decade or so until its inevitable failure in the 1980s. More specifically, steep loan default rates were incurred, the availability of government funds for lending declined and the poor farmers remained in poverty. Even the bankruptcy of most of the Rural Banks during the same period has been attributed to this policy.

The provision of cheap credit by the government to the rural poor could not be sustained. Thus in more recent years there has been a rising consciousness towards the importance of rural savings mobilization.

There are however, significant questions concerning rural savings mobilization which remain unclear such as: do rural households in the Philippines have a significant capacity to save? If so, in what forms do they save? What factors determine household savings behaviour? What factors determine the forms in which savings are held?

These questions continue to baffle policymakers and financial institutions in the Philippines and in other developing countries. Only a handful of studies have attempted to analyze, at a more micro level, the saving behaviour of rural households. Among other factors, enormous data requirements have hindered analysis. But it is important to understand the saving characteristics of households before appropriate policies can be formulated.

This study therefore, attempts to examine the saving behaviour of Filipino rural households. Household data gathered by the Agricultural Credit Policy Council (ACPC) of the Philippines during the last quarter of 1987 in selected rural provinces of the Philippines has been analyzed.[a/] The specific

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a/ Further description of the source and components of the data is found in page 14.

objectives of the study are as follows: 1) to verify the capacity of rural households in the Philippines to save; 2) to determine the factors that influence saving behaviour; 3) to examine the forms in which savings are held and identify the factors that influence financial savings.

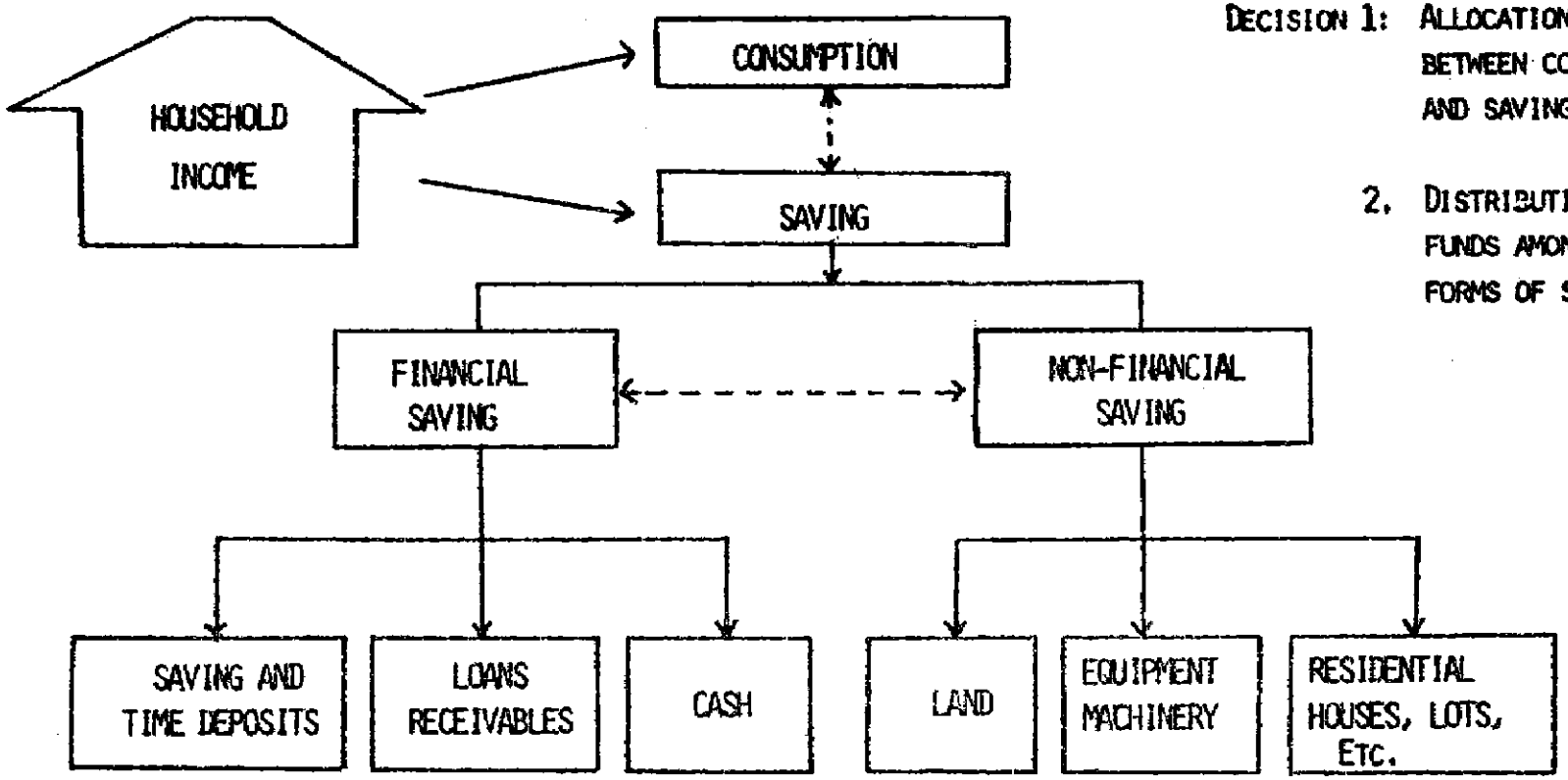
II. PRINCIPAL ISSUES RAISED

The decision to save is a two-stage sequential process (see Fig. 1), as it involves first, a decision on consumption levels after which a residual is left called saving; and, second, a decision on the allocation of surplus funds among alternative forms of saving (Tanchoco, Agabin and Sacay, 1985). Given this process, the following issues are raised:

1. Can Rural Households Save?

Two conflicting views on the savings capacity of rural households have been aired: the traditional view and the new view. The traditional view purports the idea that rural households cannot save because they are poor. Rural savings mobilization efforts are thus deemed futile and useless. Lamberte and Lim (1986) summarize this view as:

> "...they have low incomes because they have low productivity; they have low productivity because they are confined to the traditional methods of farming; they are confined to the traditional methods of farming because they do not have any savings that could be used to acquire new technology; they do not have savings because their income is low;and so on..."
> (page II-28).



DECISION 1: ALLOCATION OF INCOME BETWEEN CONSUMPTION AND SAVING.

2. DISTRIBUTION OF SURPLUS FUNDS AMONG ALTERNATIVE FORMS OF SAVING.

FIGURE 1: SAVING DECISION PROCESS

On the other hand, the new view suggests that rural households have the capacity and the desire to save and would respond to savings opportunities and incentives. In particular, Meyer (1985) cites a number of reasons to expect substantial potential for savings in the rural areas: 1) households save automatically between harvests, and/or sell a portion of their crops to pay off debts or to expand consumption; 2) rural households are heterogeneous - rich and poor; rich households can always save over long and/or short periods while poor households can save only over short periods; and 3) more modern farming methods allow farmers to increase income and, therefore, savings.

Rural households are a diverse group - with distinct traits and characteristics. Savings capacities thus also vary across groups. For example, higher marginal savings propensities are expected among household groups with higher incomes, better education or larger farms.

Studies that provide empirical evidences on the savings capacity of rural households are relatively few and quite outdated. Studying farm households in Taiwan, Ong, Adams and Singh (1976) obtained positive marginal savings propensities (MPSs) ranging from 35 percent to 69 percent over a ten-year period (i.e., from 1960 to 1970). Likewise, Kelley and Williamson (1968) estimated an MPS of 10 percent for 490 families in the Jogjakarta region of Indonesia in 1965. In their survey of farmers from the Hissar district of the State of Haryana in India, Singh, Adams and Singh (1978) measured MPSs of

21 percent to 80 percent over groups of farmers classified according to size of farm holdings over the period 1966-1970.

Estimates of savings in the Philippines have often utilized data obtained from national accounts and are thus largely macro in nature. Only one study has closely looked into the saving capacity of Filipino rural households. This study was undertaken by the Technical Board for Agricultural Credit (TBAC) and the University of the Philippines Business Research Foundation (UPBRF) in 1981. The TBAC-UPBRF study estimated a savings function that defined savings as change in earned networth. Household data were obtained from a farm-record keeping project undertaken by the Bureau of Agricultural Economics (BAECON) in ten provinces of the Philippines for the period 1976-1978. The study's regression results yielded positive marginal saving propensities of 24 percent to 30 percent for the nationwide sample of 581 farm households. No other study has been located that attempted to update or follow-up these results.

2. <u>If rural households do save, what factors would induce them to increase savings</u>?

Household savings behaviour is largely influenced by ability, willingness, and the opportunity to save which are reflected in factors such as income, wealth, dependency ratio, education, age, occupation, interest rates and the level of financial intermediation or transaction costs (Wai, 1974).

<u>Income</u>. Income has been viewed as the most important determinant of saving. An increase in income has been found to

raise the household's ability to acquire surplus funds. The basic savings theories relate income to savings, including those of Keynes (Absolute Income Hypothesis) and Friedman (Permanent Income Hypothesis). These theories suggest different income concepts.

Absolute Income. The Absolute Income Hypothesis postulates that the current level of income determines saving. The Permanent Income Hypothesis, on the other hand, posits that saving is dependent not on current income but on the permanent and transitory components of income. The main issue that arises in any study, therefore, is which of the two theories better explains savings. Early studies on savings were built mainly on the Absolute Income Theory. But income is generally variable so current income may not fully explain variations in saving. Thus, economists have considered permanent and transitory incomes as better determinants of savings especially among rural economies where incomes are generally characterized by extreme variability or high seasonality (e.g. Williamson; Hyun, Adams and Hushak; Gupta).

Permanent Income. Permanent income is defined as the level of income a household expects to receive over a long period. Transitory income, on the other hand, represents spurts (i.e., increases and/or decreases) in income which households experience occasionally. The permanent income hypothesis suggests that the marginal propensity to save out of transitory income should be greater than that of permanent income. As income increases over

the short-run, the household is not quite sure that the new income level would be sustained over a longer period over which consumption plans are based (Sicat, 1983). Hence, said household would not immediately adjust consumption level to the change in income level. Considering the relative variability in rural incomes, rural households are deemed to save more out of transitory incomes. Gupta, using available evidence on Indian saving behaviour, found a higher MPS out of transitory income in the rural areas than in the urban areas. This indicates, therefore, that different measurements of income - permanent and transitory will provide a better explanation of variations in savings than the absolute income concept.

Other Variables. Other variables also explain savings behaviour. Wealth, in particular, has been found to be a significant determinant of saving (e.g. Kelley and Williamson; Ong, Adams and Singh). A direct and positive relationship is expected between saving and wealth since the latter raises ability to save. Alamgir (1974) defines wealth as the accumulated networth of an economic unit. Studies in developing countries have however been hampered by both theoretical and empirical difficulties in testing the link between saving and wealth. The inadequacy of data has prevented the estimation of the level of wealth. Thus, most researchers have had to employ proxies for wealth such as farm size (e.g. Ong, Adams and Singh; Kelley and Williamson) and an index to measure "quality of the house" (e.g., Vasquez, 1986). This particular study measures wealth directly based on Alamgir's definition.

In addition, certain demographic characteristics of households have been found to have a significant impact on savings. The dependency ratio, for example, defined here as the ratio of the number of dependents over the total number of household members is expected to have a negative impact on saving. Higher ratios indicate more consumption expenditures and therefore, lesser savings.

Age is also hypothesized to have a negative impact on saving. Based on the Life Cycle Hypothesis (Ando, Brumberg and Modigliani), an individual evens out his consumption over his lifetime so that more savings are incurred in his younger years to maintain his consumption standard upon retirement. Therefore, savings decrease as the individual ages (see Figure II).

Education is anticipated to have a positive impact on savings mainly because of increased awareness that occurs with higher educational levels. Appendix I summarizes the variables expected to affect saving behaviour.

3. With positive saving, what factors determine the forms in which savings are held?

Policymakers and financial institutions have recently placed greater emphasis on financial savings mobilized by the financial system because of two reasons: 1) financial savings seem easier to directly influence than aggregate savings; 2) financial savings provide funds important to banks for lending. Among rural households, the bulk of savings has been mainly in the form of

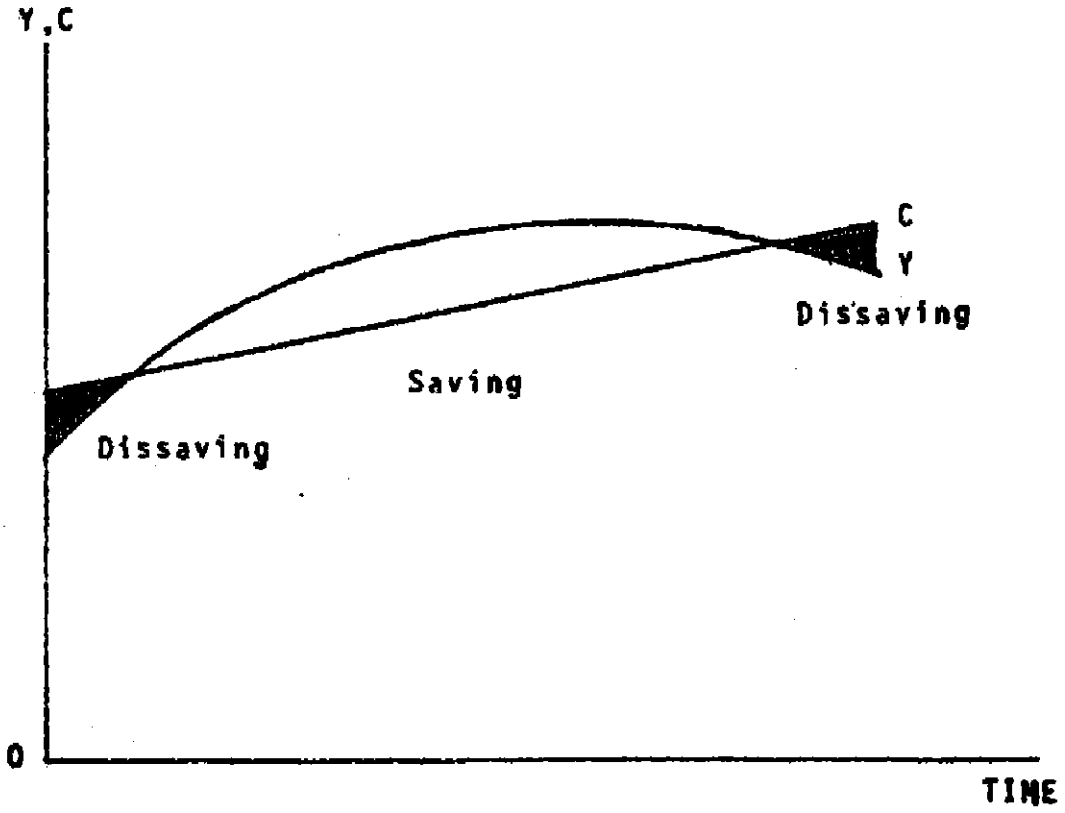


FIGURE 2: THE LIFE-CYCLE HYPOTHESIS
of CONSUMPTION

physical assets like farmland and equipment, inventory of crops and livestock and other assets like jewelry and consumer durables. Financial savings often comprise a small proportion of total household savings. The transformation of more physical assets into financial savings is the challenge to the policymakers who seek to mobilize more rural deposits.

This study is focused, therefore, on the factors that are likely to influence the level of financial savings held by rural households. Financial savings are largely determined by two major factors: Interest Rate and Transaction Costs (Vasquez, 1986; Khallily, 1985; Srinivasan and Meyer, 1986).

Deposit Interest Rates. Interest rates may be easily influenced by policymakers to improve savings mobilization. Raising deposit interest rates has been a controversial method of increasing savings because their exact effect on savings could not be established. Wai argues that financial savings are not always responsive to interest rates in developing countries because: 1) Poor households may be insensitive even to a large change in interest rates; 2) Income effects may outweigh substitution effects; 3) Households tend to be insensitive to changes in interest rates especially among developing countries where a policy of fixed or rigid interest rate is adopted; and 4) Religion or social norms may discourage or prohibit the payment of explicit interest.

Srinivasan and Meyer argue however, that the impact of deposit interest rates on household financial savings should be

positive "because such savings can substitute for physical capital, cash and inflation hedges in the household's investment portfolio". Other economists argue further that the substitution effect outweighs the income effect and, therefore, increases in interest rates would lead to increases in savings. Lanyi and Saracoglu (1983) present evidence from Asian and Latin countries that the substitution effect of interest changes is more important than the income effect in affecting savings. For this reason, this study hypothesizes that an increase in interest rate will raise the expected returns on financial savings and induce households to substitute financial savings for other forms of savings. It is important and interesting to assess the impact of this variable on financial savings in the Philippines today not only because of recent emphasis on savings mobilization but also because of the country's relatively recent implementation of a flexible interest rate policy.

Transaction Costs. Transaction costs are also expected to have a significant impact on financial saving since these costs tend to reduce the expected net returns on savings. Transaction costs are defined as the amount of expenditures incurred by households in making and withdrawing deposit. Unlike other studies which utilize proxies for transactions costs, this study measures these directly based on the responses of the households during the survey. The amount of transaction costs reported by these households take the form of transportation expenses, payments to facilitators and expenses on food and refreshments.

The opportunity cost of making and withdrawing deposit could not be quantified due to insufficient time and data.

III. EMPIRICAL RESULTS

1. Data Sources

The data used in this study were obtained from a household survey conducted by the Agricultural Credit Policy Council (ACPC) during the last quarter of 1987. The survey was undertaken purposely to gather information on the saving characteristics of rural households located in the service areas of the Rural Banks participating in the Rural Savings Mobilization Project of the ACPC[b/]. A total of 1,000 households were randomly selected and then interviewed by trained enumerators. The areas surveyed included the provinces of Batangas, Camarines Sur and Pangasinan in Luzon, Iloilo and Negros Oriental in Visayas and Misamis Oriental in Mindanao. The data gathered included information on the demographic characteristics of the areas and the households, income, physical and financial assets, borrowings, and the attitudes and perceptions toward savings for the period of January to December 1986. A total of 980 of the 1,000 households were included in this study. The remaining 20 households were eliminated as outliers. Table 1 presents the distribution of households by province.

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b/ Details on the survey are presented in the ACPC Rural Savings Mobilization Project Program Design (1988).

Table 1

TOTAL NUMBER OF HOUSEHOLDS IN THE SAMPLE, BY PROVINCE

Province	No.	Percent (%) to Total
Batangas	273	28.0
Camarines Sur	151	15.4
Pangasinan	123	12.5
Iloilo	193	19.6
Negros Oriental	103	10.5
Misamis Oriental	137	14.0
Total	980	100.0

Source: Rodriguez, Jocelyn A., "Saving Behavior and Portfolio Choice among Rural Households in the Philippines," 1988 (forthcoming M.A. Thesis, University of the Philippines, School of Economics).

2. Profile of Households in the Sample.

A. Demographic Characteristics

Table 2 presents the demographic characteristics of the 980 heads or chief income-earners of the households in the sample. More than three-fourths (88.3%) were males. The average age of the household head was 47 years.

Nearly half or 44 percent were farmers while the others were either hired laborers (21%), fishermen (5.3%), craftsmen (8.1%), office workers (3.6%), entrepreneurs (8.3%) and professionals (1.4%). The remaining 8.6 percent included pension-earners, recipients of income from abroad and respondents who claimed gambling as their principal means of earning a living.

The farmers were further disaggregated into groups according to the size of their farms. These farmers appear to be more or less evenly distributed among the six farm size categories (Table 3). About 132 of the 430 farmers (31%) tilled less than a hectare of land, 20.5 percent reported one to 1.9 hectares, 16.5 percent reported two - 2.9 hectares, 15.8 percent tilled three to 4.9 hectares and 16.5 percent reported more than five hectares.

The household heads interviewed generally reached the elementary level (66.5%) and about 21 percent attained a high school education. About 3.8 percent were unschooled, 1.8 percent took vocational courses and 7 percent reached college.

Table 2

PRINCIPAL CHARACTERISTICS OF HEADS OF SAMPLE HOUSEHOLD

Type of Occupation	No. of Households Reporting	Percent to Total (%)
Sex		
Male	865	88.3
Female	115	11.7
Age		
< 20	4	0.4
21 - 30	126	12.9
31 - 40	197	20.1
41 - 50	275	28.1
51 - 60	210	21.4
61 - 70	124	12.6
71 - 80	39	4.0
Above 80	5	0.5
Average Age	47	
Educational Attainment		
Unschooled	37	3.8
Elementary	652	66.5
High School	206	21.0
Vocational	18	1.8
College or Higher	67	6.9
Type of Occupation		
Laborers	205	21.0
Farmers	430	43.9
Fishermen	52	5.3
Technical/Craftsmen	79	8.1
Office Workers	35	3.6
Entrepreneurs	81	8.3
Professionals	14	1.4
Unclassified*	85	8.6
Labor Status		
Wage Earner	779	79.5
Self-employed	116	11.8
Unclassified*	85	8.7

* Includes pension-earners and those who regularly receive income from abroad.

Source: Rodriguez, Jocelyn A., "Saving Behavior and Portfolio Choice among Rural Households in the Philippines," 1988 (forthcoming M.A. Thesis, University of the Philippines, School of Economics).

Table 3

DISTRIBUTION OF HOUSEHOLDS HEADED FARMERS, BY FARM SIZE

Farm Size (In Hectares)	Number	Percent to Total (%)
< 1.0	132	30.7
1.1 - 1.9	88	20.5
2.0 - 2.9	71	16.5
3.0 - 3.9	37	8.6
4.0 - 4.9	31	7.2
> 5.0	71	16.5
Total	430	100.0

Source: Rodriguez, Jocelyn Alma A., "Saving Behavior and Portfolio Choice among Rural Households in the Philippines," 1988 (forthcoming M.A. Thesis, University of the Philippines School of Economics).

By labor status, 36 percent were wage earners, 56 percent were self-employed and the remaining 8 percent could not be classified. The pension earners, the regular recipients of income from abroad and the self-proclaimed gamblers belong to the "unclassified" group.

The majority of the households (61.3%) were composed of 5-9 members. The average size of the households was 6 members. More than half (52.6%) reported 4-7 dependents with four as the average number.

B. Economic Characteristics

The households earned average nominal incomes of ₱19,143.00 for 1986. Majority (60%) had incomes less than ₱20,000.00. A significant number (147 households) however, received incomes of more than ₱40,000.00 during the period (Table 5). Table 6 indicates that most if not all households had more than one income source. While more than 50 percent had incomes sourced from agriculture, majority (82%) also relied on off-farm sources.

Another indicator of a household's economic condition is its net worth during the reference period. Table 7 shows that on the average, a household had a net worth of ₱42,395.00. A great majority (82%) owned their dwelling units (Table 8). Among farmers, almost 90 percent owned the houses they resided in during the reference period (Table 9). Note that only houses with some market value as of the end of 1986 were considered and reported. Almost three-fourth (73%) of the households possessed consumer durables like television sets, refrigerators, electric

Table 4

DISTRIBUTION OF SAMPLE HOUSEHOLDS, BY HOUSEHOLD SIZE AND NO. OF DEPENDENTS

Type of Occupation	No.	Percent to Total (%)
Household Size		
0 - 4	287	29.3
5 - 9	601	61.3
10 - 14	89	9.1
15 - 18	3	0.3
Average Size of HH	6	
Number of Dependents		
0 - 3	359	36.6
4 - 7	516	52.6
8 - 11	100	10.2
12 - 15	4	0.4
> 15	1	0.1
Average Number of Dependents	4	

Source: Rodriguez, Jocelyn A., "Saving Behavior and Portfolio Choice among Rural Households in the Philippines," 1988 (forthcoming M.A. Thesis, University of the Philippines, School of Economics).

Table 5

DISTRIBUTION OF HOUSEHOLDS, BY LEVEL OF INCOME
(January 1 to December 31, 1986)

Income Group 1/	Number	Percent to Total (%)
< P 20,000	587	60.0
P20,001 - P 40,000	246	25.1
P40,001 - P 60,000	77	8.0
P60,001 - P 80,000	26	2.6
P80,001 - P100,000	17	1.7
> P100,000	27	2.8
Total	980	100.0
Average Income	P 19,143	

Source: Rodriguez, Jocelyn Alma A., "Saving Behavior and Portfolio Choice among Rural Households in the Philippines," 1988 (forthcoming M.A. Thesis, University of the Philippines School of Economics).

1/ Exchange Rate US$1 = P21.00

Table 6

HOUSEHOLD INCOME, BY SOURCE
January - December 1986

Type of Occupation	No. of Households Reporting	Percent to Total (%)	Average Income Per Annum a/ (P)
A. Agricultural Income			
1. Income from Crop Production	385	39.3	3,583
2. Income from Livestock and Poultry	201	20.5	2,963
3. Income from Fishing	63	6.4	13,332
B. Non-Agricultural Income	862	88.0	18,498
C. Total Income	980	100.0	19,143

a/ Exchange Rate : US$1 = P21.00

Source: Rodriguez, Jocelyn A., "Saving Behavior and Portfolio Choice among Rural Households in the Philippines," 1988 (forthcoming M.A. Thesis, University of the Philippines, School of Economics).

Table 7

STRUCTURE OF ASSETS AND LIABILITIES OF ALL HOUSEHOLDS
As of December 31, 1986

Item	Average Value per Household a/ (in pesos)	Percent to Total Value (%)
A. ASSETS		
Physical Assets		
Farm Land	11,600	26.4
Farm Equipment	660	1.5
Farm Structure	684	1.6
Crop Inventory	137	0.3
Livestock and Poultry	2,889	6.6
Fishing Equipment	188	0.4
Residential House and Lot	21,844	50.0
Consumer Durables	4,873	11.1
Financial Assets b/	1,007	2.3
Total Assets	43,882	
B. LIABILITIES		
Formal Loans	903	60.8
Informal Loans	583	39.2
Total Liabilities	1,486	
C. NET WORTH	42,395	
Total Number of Observations	980	

a/ $\frac{\text{Total value of Asset}}{\text{Total number of observations}}$

b/ Includes outstanding amount of bank deposits, non-bank deposits and loan receivables; excludes cash due to inadequate data.

Source: Rodriguez, Jocelyn A., "Saving Behavior and Portfolio Choice among Rural Households in the Philippines," 1988 (forthcoming M.A. Thesis, University of the Philippines, School of Economics).

Table 8

NUMBER OF HOUSEHOLDS REPORTING OWNERSHIP OF ASSETS, BY TYPE OF ASSET
As of December 31, 1986

TYPE OF ASSET	Number Reporting	Percent to Total (%)	Average Value a/ (in pesos)
1. Physical Assets			
Farm Land	295	30	38,535
Farm Equipment	278	28	2,328
Farm Structure	99	10	6,772
Crop Inventory	70	7	1,919
Livestock and Poultry	389	40	7,277
Fishing Equipment	61	6	3,019
Residential House and Lot	806	82	26,560
Consumer Durables	712	73	6,707
2. Financial Assets			
Bank Deposits	136	14	5,732
Non-Bank Deposits	26	3	2,449
Loan Receivables	52	5	2,735
Others	7	0.7	157
Total number of observations	980		

a/ $\frac{\text{Total Value of Asset}}{\text{Total number of Households Reporting}}$

Note: Exchange Rate: US$1 = P21.00

Source: Rodriguez, Jocelyn A., "Saving Behavior and Portfolio Choice among Rural Households in the Philippines," 1988 (fortcoming M.A. Thesis, University of the Philippines, School of Economics).

Table 9

NUMBER OF HOUSEHOLDS REPORTING OWNERSHIP OF DWELLING UNIT, BY TYPE OF MAJOR OCCUPATION

Occupation	Number Reporting (a)	Total Number of Observations (b)	Percent to Total (%) (a) : (b)	Average Value* As of December 31 1986 (In Pesos)
Laborers	153	204	75.0	16530
Farmers	384	430	89.0	19808
Fisherman	44	52	85.0	5790
Craftsmen	60	79	76.0	26600
Office Workers	30	35	86.0	66730
Enterpreneurs	60	81	74.0	61950
Professionals	10	14	71.4	56300
Others	65	85	70.5	48289
Total	806	980	82.2	26560

* $\frac{\text{Total Value}}{\text{Total Number Reporting}}$

Source: Rodriguez, Jocelyn Alma A., "Saving Behavior and Portfolio Choice among Rural Households in the Philippines," 1988 (forthcoming M.A. Thesis, University of the Philippines School of Economics).

Note: Exchange Rate US$1 = P21.00

fans, among others. Table 10 presents the distribution of households reporting ownership of consumer durables by type of major occupation.

3. Savings Propensities[c/]

Filipino rural households are, in general, savers. Majority (57%) reported positive savings for 1986 (Table 11). An average household saved about ₱6,901 during the period and positive MPSs ranging from 58 percent to 89 percent were estimated for groups of households classified according to income group, occupation and farm size. The average propensity to save (APS) which is measured as the ratio of saving to total income, was 36 percent for the total sample of 980 households. This means that the average household saved about 36 percent of its total income in 1986. It can be observed from Table 12 that APSs generally increase with income. This confirms the theory that households allocate less of income to consumption and more to saving as incomes rise.

The professionals posted the highest MPS (89%) followed by the pension-earners and recipients of income from abroad (84%). The farmers registered an MPS of 66 percent (Table 13).

The farmers were further classified into six farm size groups. No distinct trend in MPS with respect to farm size could

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c/ The marginal savings propensities of the sample households were measured by estimating a simple linear saving function of the following form: $S = a + bY$ where S is saving, Y is current income, a is the intercept/constant, b is the marginal propensity to save. Regression results are presented in detail in Appendix 2.

Table 10

NUMBER OF HOUSEHOLDS REPORTING OWNERSHIP OF CONSUMER DURABLES, BY TYPE OF MAJOR OCCUPATION

Occupation	Number Reporting (a)	Total Number of Observations (b)	Percent to Total (%) (a) : (b)	** Average Value As of December 31 1986 (In Pesos)
Laborers	130	204	63.7	4768
Farmers	324	430	75.3	3945
Fisherman	34	52	65.4	2040
Craftsmen	58	79	73.4	9514
Office Workers	32	35	91.4	16567
Enterpreneurs	61	81	75.3	13893
Professionals	13	14	93.0	12227
Others	60	85	70.6	11991
Total	712	980	72.6	6707

* These pertain to major household furnitures and appliances like sala set, refrigerator, television set, automobile, etc. with market value as of December 31, 1988.

** Total Value

Total Number Reporting

Source: Rodriguez, Jocelyn Alma A., "Saving Behavior and Portfolio Choice among Rural Households in the Philippines," 1988 (forthcoming M.A. Thesis, University of the Philippines School of Economics).

Note: Exchange Rate US$1 = P21.00

Table 11

DISTRIBUTION OF HOUSEHOLDS, BY LEVEL OF FINANCIAL SAVINGS (DEPOSITS)

	Number	Percent to Total (%)
NEGATIVE	421	43.0
0 - P 25,000	470	48.0
P25,001 - P 50,000	40	4.1
P50,001 - P 75,000	18	1.8
P75,001 - P100,000	15	1.5
> P100,000	16	1.6
Total	980	100.0
Average Saving	P 6,901	

Source: Rodriguez, Jocelyn Alma A., "Saving Behavior and Portfolio Choice among Rural Households in the Philippines," 1988 (forthcoming M. A. Thesis, University of the Philippines School of Economics).

Table 12

SAVING PROPENSITIES, BY INCOME GROUP

Income Group	No. of Households Reporting	Percent to Total (%)	Average Saving a/ (P)	Average Propensity to save b/ (%)	Marginal Propensity to save c/ (%)	
< P20,000	587	59.9	-984	- 15	67	(15.8)*
P20,000 - P40,000	246	25.1	3,696	18	58	(9.6)
P40,000 - P60,000	7	0.7	15,688	44	74	(8.4)
P60,000 - P80,000	26	2.7	35,464	58	72	(4.0)
P80,000 - P100,000	17	1.7	59,953	75	84	(4.8)
> P100,000	27	2.8	30,319	73	77	(4.5)
All Households	980	100.0	6,901	36	73	(70.3)

a/ Savings is defined as: Total Income less Total Consumption Expenditures (excluding purchases of consumer durables).

b/ $\frac{\text{Saving}}{\text{Total Income}}$

c/ Estimated by regressing current income on savings; see Appendix I

* Figures in parentheses are the T-values.

Source: Rodriguez, Jocelyn A., "Saving Behavior and Portfolio Choice among Rural Households in the Philippines," 1988 (forthcoming M.A. Thesis, University of the Philippines' School of Economics).

Table 13

SAVING PROPENSITIES, BY TYPE OF MAJOR OCCUPATION

Type of Occupation	No. of Household Reporting	Percent to Total (%)	Average Income (P)	Average Saving a/ (P)	Average Propensity to save b/ (%)	Marginal Propensity to save c/ (%)	
Laborers	204	0.21	15,045	6,018	40	82	(40.7)*
Farmers	430	0.44	13,582	3,840	28	66	(43.6)
Fishermen	52	0.05	17,333	9,301	54	78	(27.7)
Craftsmen	79	0.08	17,968	3,523	20	64	(14.6)
Office Workers	35	0.04	25,549	4,957	19	76	(9.7)
Entrepreneurs	81	0.08	32,893	13,497	41	72	(17.3)
Professionals	14	0.01	26,185	5,931	23	89	(8.9)
Others	85	0.09	25,208	8,963	35	84	(22.8)
All Households	980	1.00	19,143	6,901	36	73	(70.3)

a/ Saving is defined as: Total Income less Total Consumption Expenditures (excluding purchases of consumer durables).

b/ $\frac{\text{Saving}}{\text{Total Income}}$

c/ Estimated by regressing current income on savings; see Appendix I

* Figures in parentheses are the T-values.

Source: Rodriguez, Jocelyn A., "Saving Behavior and Portfolio Choice among Rural Households in the Philippines," 1988 (forthcoming M.A. Thesis, Univesity of the Philippines, School of Economics).

be determined (Table 14). Farmers with less than a hectare of land had a higher marginal saving propensity than those with greater than two hectares. On the other hand, those who had 1.0 to 1.9 hectares showed higher saving propensities than those who had less than a hectare. This may confirm recent findings that the intensity of land utilization rather than farm size determine income and then savings.

4. Determinants of Savings Behaviour.

Three savings models (see Appendix 3a) were estimated in order to identify the significant determinants of savings behaviour. Savings, as the dependent variable, is defined as the residual left after deducting consumption from income.[c/] Following Wai, the explanatory variables[d/] included in the models reflect the ability, willingness and opportunity to save of the household. Specifically, savings were regressed on current, permanent[e/] and transitory incomes, wealth, dependency ratio, education, occupation, age and transaction costs. Ordinary least squares (OLS) method was used to estimate the coefficients of the explanatory variables.

The explanatory variables in the first model included current income, wealth, education, occupation and dependency

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c/ The balance sheet method of measuring saving could not be used due to inappropriate data.

d/ See Appendix 1 for definition of variables.

e/ See Appendix 4 for a discussion on the method used in estimating permanent income.

Table 14

SAVINGS PROPENSITIES, BY FARM SIZE

Farm Size	No. of Households Reporting	Percent to Total (%)	Average Income (In Pesos)	Average Saving a/ (In Pesos)	Average Propensity To Save b/ (%)	Marginal Propensity To Save c/ (%)
< 1.0	132	13.47	20,333	7618	37.5	78.0 (56.2)*
1.0 - 1.9	88	8.98	13,740	5987	43.6	85.0 (35.3)
2.0 - 2.9	71	7.24	9,770	-252	-2.6	56.5 (8.1)
3.0 - 3.9	37	3.78	15,370	4154	27.0	72.5 (11.7)
4.0 - 4.9	31	3.16	24,704	10569	42.8	72.5 (20.5)
> 5.0	71	7.24	23,765	8175	34.4	73.4 (19.1)
All Households	980	100.00	19,143	6901	36	73 (70.3)

a/ Savings is defined as Total Income less Total Consumption Expenditures (excluding purchases of consumer durables).

b/ $\frac{\text{Savings}}{\text{Total Income}}$

c/ Estimated by regressing current income on saving; see Appendix I

* Figures in parentheses are the t-values.

Source: Rodriguez, Jocelyn Alma A., "Saving Behavior and Portfolio Choice among Rural Households in the Philippines," 1988 (forthcoming M. A. Thesis, University of the Philippines School of Economics).

ratio. The first four variables (i.e., income, wealth, education and occupation) turned out to be significant at the 5 percent level. Education, however, yielded the unexpected sign. Higher levels of education may mean increased awareness of consumption opportunities. The results for current income, wealth and occupation support the hypotheses that these variables have a direct and positive impact on saving. The coefficient of current income which is 0.73 is the marginal propensity to save for the total sample of 980 households. In addition, an R-square of 0.84 was obtained which means that 84 percent of the change in saving is due to variations in the explanatory variables.

In Model 2, the permanent and transitory incomes were regressed on saving. Coefficients of 0.60 and 0.75 were obtained, respectively. This implies that people tend to save more out of transitory income than permanent income which confirms Friedman's hypothesis. As in Model 1, a high R-square was obtained (0.84).

Finally, Model 3 includes permanent and transitory incomes, education, occupation and dependency ratio as the explanatory variables. In addition to permanent and transitory incomes and occupation, the dependency ratio also turned up to be a significant variable. Its negative coefficient indicates that higher dependency ratios means more mouths to feed for the household, higher consumption levels and therefore lesser savings. Like the first two models, a high R-square (0.85) was also obtained.

5. Structure of Household Savings and Asset

As shown in Table 7, physical assets dominated the saving and asset portfolios of rural households (Table 14). The residential house and lot accounted for the largest percentage (50%) followed by farmland (26.4%) and consumer durables (11%). Financial assets such as bank deposits, non-bank deposits and loans receivables comprised only 2.3 percent of the average household's assets. Of the total financial assets (cash excluded), rural households held approximately 79 percent in bank deposits, around 14 percent in loans receivables and 6.5 percent in non-bank deposits. A negligible proportion held other forms of financial assets like insurances and government securities. The households which reported deposits in banks or financial institutions number 136 or 14 percent of the total sample. On the average, a household had deposits outstanding of ₱5,732.00. Only 26 of the 980 households reported deposits in informal groups or organizations. The average amount of deposit outstanding of households in such groups was ₱2,449.00. Cash could not be accounted for because of unreliability in the information provided by the respondents during the survey.

6. Determinants of the Demand for Financial Assets

Two models were formulated and tested in order to examine the determinants of the demand for financial assets (See Appendix 3B). The first model defines the dependent variable as the outstanding amount of deposits in banks and in informal organizations. The second model considers only the outstanding

Table 15

STRUCTURE OF ASSETS AND LIABILITIES, BY TYPE OF OCCUPATION
As of December 31, 1986

TYPE OF ASSET	LABORERS		FARMERS		FISHERMEN		CRAFTSMEN		OFFICE WORKERS		ENTREPRENEURS		PROFESSIONALS		UNCLASSIFIED	
	Average Value (in pesos)	Percent to total value (%)	Average Value (in pesos)	Percent to total value (%)	Average Value (in pesos)	Percent to total value (%)	Average Value (in pesos)	Percent to total value (%)	Average Value (in pesos)	Percent to total value (%)	Average Value (in pesos)	Percent to total value (%)	Average Value (in pesos)	Percent to total value (%)	Average Value (in pesos)	Percent to total value (%)
A. ASSETS																
Physical Assets																
Farm Land	7,758	27	18,169	41.0	340	4.1	3,222	10.0	4,329	5.6	10,667	11.1	3,142	5.4	7,616	13.6
Farm Equipment	*	-	1,304	3.0	*	-	*	-	647	0.8	*	-	*	-	503	0.8
Farm Structure	*	-	465	1.0	*	-	*	-	0	-	5,606	5.8	*	-	152	0.2
Crop Inventory	*	-	275	0.6	*	-	*	-	*	-	0	-	*	-	0	-
Livestock and Poultry	5,752	20	3,113	7.0	413	5.0	660	2.0	322	0.4	22,857	23.8	*	-	512	0.9
Fishing Equipment	*	-	251	0.5	1,187	14.1	*	-	0	-	*	-	0	-	*	-
Residential House and Lot	12,398	43	17,669	40.0	4,898	59.4	20,202	62.7	57,197	73.4	45,889	46.0	40,214	69.4	37,386	66.8
Consumer Durables	3,038	11	2,972	6.6	1,334	16.2	6,985	21.7	15,147	19.4	10,462	11.0	11,354	20.0	8,565	15.3
Financial Assets																
Bank Deposits	121	.4	373	0.8	98	1.2	*	-	256	0.3	231	0.2	3,261	5.6	1,214	2.2
Non-Bank Deposits	*	-	*	-	*	-	667	2.1	0	-	*	-	*	-	*	-
Loan Receivables	*	-	165	0.3	*	-	461	1.4	*	-	235	0.2	*	-	*	-
Others	0	-	*	-	*	-	-	-	0	-	0	-	0	-	*	-
B. LIABILITIES																
1. Formal Loans	1,988	84.0	502	47.0	0	-	179	13.9	1,305	70.0	2,098	81.0	2,314		0	-
2. Informal Loans	378	16.0	571	53.2	689	100.0	1,115	86.2	571	30.0	500	19.0	942		656	100.0
C. NETWORTH	26,812		43,703		7,561		30,903		76,022		93,349		54,715		55,272	
Number of observations	204		430		52		79		35		81		14		85	

* Negligible

Source: Rodriguez, Jocelyn A., "Saving Behavior and Portfolio Choice among Rural Households in the Philippines," 1988 (forthcoming M.A. Thesis, University of the Philippines School of Economics)

Table 16

STRUCTURE OF FINANCIAL ASSETS OF ALL HOUSEHOLDS a/
As of December 31, 1986

Type of Asset	Average Amount Outstanding per Household b/ (in pesos)	% to Total Value
Bank Deposits	795	79.1
Non-Bank Deposits	65	6.5
Loan Receivables	145	14.4
Others c/	*	-
Total	1005	100.0
Total Number of Observations	980	

a/ excludes cash due to inadequate data.

b/ $\frac{\text{Total Amount Outstanding}}{\text{Total Number of observations}}$

c/ includes insurance, government securities, etc.

* negligible

Source: Rodriguez, Jocelyn A., "Saving Behavior and Portfolio Choice among Rural Households in the Philippines," 1988 (forthcoming M.A. Thesis, University of the Philippines, School of Economics).

Table 17

DISTRIBUTION OF HOUSEHOLDS WITH REPORTED DEPOSITS, BY LEVEL OF DEPOSIT

Amount of Deposit Outstanding (P)	Bank Deposits		Non-Bank Deposits	
	Number	Percent to Total	Number	Percent to Total
0 - P1000	87	64.0	21	80.8
P1001 - P2000	13	9.6	3	11.5
P2001 - P3000	10	7.3	2	7.7
P3001 - P4000	3	2.2	0	-
P4001 - P5000	5	3.7	0	-
> P5000	18	13.2	0	-
Total	136	100.0	26	100.0
Average Deposit Outstanding	P 5732		P 2449	

* nine (9) households hold both bank and non-bank deposits.

Source: Rodriguez, Jocelyn Alma A., "Saving Behavior and Portfolio Choice among Rural Households in the Philippines," 1988 (forthcoming M. A. Thesis, University of the Philippines School of Economics).

amount of deposits in banks. In both models, the explanatory variables include permanent and transitory incomes, interest rate on saving and time deposits[f/] and transaction costs. The variables that showed up to be significant and are of the correct signs were permanent income, transitory income and interest rate on time deposit. The interest rate was found to be a significant influence on the decision of the sample rural households to acquire financial assets. The other interest rate index, the interest rate on saving deposit yielded the correct sign but was found insignificant. This may be explained by the small standard deviation of this index (0.21) relative to the standard deviation of the interest rate on time deposit (1.35). The average interest rate on time deposits reported by the households was 10.3 percent and on savings deposits, 7.8 percent.

Transaction costs did not show up to be a significant saving determinant but its coefficient yielded a negative sign. Table 19 presents the average amount of transaction costs incurred by households in making and withdrawing deposits in banks and in informal groups or organizations. About ₱7.00 was spent by households per deposit or withdrawal transaction in banks and ₱2.00 in informal groups or organizations.

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f/ Two interest rate indices were employed: the average rate on savings deposits (ISAVE) and the average rate on time deposits (ITIME). In order to determine the impact of interest rates, the sum of bank and non-bank deposits (DEP) as dependent variable was regressed against the interest rate indices, transactions costs and other variables like permanent and transitory incomes.

Table 18

AVERAGE INTEREST RATES REPORTED BY HOUSEHOLDS, BY TYPE OF BANK DEPOSIT

	Value
On Savings Deposit	7.8 %
On Time Deposit	10.3 %

Source: Rodriguez, Jocelyn Alma A., "Saving Behavior and Portfolio Choice among Rural Households in the Philippines," 1988 (forthcoming M. A. Thesis, University of the Philippines School of Economics).

Table 19

AVERAGE TRANSACTION COSTS IN MAKING AND WITHDRAWING DEPOSITS

Item	Amount (in Pesos) Bank	Non-Bank
Transportation	2	2
Food	5	0
Other Cash Outlay	0	0
Total	7	2
Total Number of Observations	136	26

Source: Rodriguez, Jocelyn Alma A., "Saving Behavior and Portfolio Choice among Rural Households in the Philippines," 1988 (forthcoming M. A. Thesis, University of the Philippines School of Economics).

IV. CONCLUSIONS AND POLICY IMPLICATIONS

A large potential for voluntary savings can be found in the rural areas of the Philippines and other less developed countries. There is no reason to believe that mobilization of voluntary rural savings cannot be pursued. The findings further indicate that income is the most important economic variable affecting rural savings. Income-increasing incentives to encourage farm investment such as facilitating the introduction of improved technology, providing appropriate farm support services and long-term measures toward the creation of employment opportunities should boost the volume of rural savings. Well-designed rural savings mobilization programs should be implemented to further harness the potential for voluntary savings. Since more is saved out of transitory incomes, spurts in income are therefore highly susceptible to savings opportunities and incentives.

The implementation of a widespread population growth reduction program should translate into greater savings since the number of dependents has been found to reduce the level of savings. Moreover, the upliftment of educational standards should eventually also lead to the acceleration of the savings rate.

Considering the significant impact of interest rates on financial savings, banking institutions should emphasize this factor in their depo

encouraged with the recent implementation of market-oriented interest rate policies in the country. Also, rural-based financial institutions, especially the rural banks should reach out to more households as they are in the position of greatest comparative advantage in carrying out deposit services in the countryside.

Appendix 1

DEFINITION OF VARIABLES

Variable	Definition/Measure	Expected Sign
A. DEPENDENT VARIABLES		
SAVING	The residual after deducting consumption expenditures (excluding purhases of consumer durables) from income.	
DEPOSIT	Oustanding amount of deposits in banks and in informal groups/ organizations as of December 31, 1986.	
B. EXPLANATORY VARIABLES:		
INCOME		
Current	Total receipts from all sources net of production or operating expenses for the period January to December 1986.	(+)
Permanent	Value is predicted by regressing current income on permanent household characteristics like educational attainment of household head, household size, value of physical assets and financial assets and occupation.	(+)
Transitory	Current income minus Permanent income	(+)
WEALTH	Total Value of Assets (Physical and Financial) less Total Liabilities or Networth of the Household (as of December 31, 1986).	(+)
DEPENDENCY RATIO	Ratio of the Number of household members viewed as dependent by the households head to the total number of household member.	(-)
OCCUPATION	Principal means of earning a living of the household head.	(+)
EDUCATION	Highest educational attainment of the household head.	(+)
INTEREST RATE	Rate on Savings and Time Deposits reported by households.	(+)
TRANSACTION COSTS	Costs incurred in making and withdrawing deposit.	(-)

Appendix 2

REGRESSION ESTIMATES,*
BY INCOME GROUP, OCCUPATION AND FARM SIZE

	Estimated Coefficients			R^2
	a	b		
INCOME GROUP				
0 - P 20000	-5339	0.67	(15.8)**	0.30
P 20001 - P 20000	-7919	0.58	(9.6)	0.28
P 40001 - P 40000	-10927	0.74	(8.4)	0.46
P 60001 - P 80000	-8350	0.72	(4.0)	0.39
P 80001 - P100000	-7434	0.84	(4.8)	0.60
> P100000	1151	0.77	(4.5)	0.45
OCCUPATION				
Laborers	-7209	0.82	(40.7)	0.89
Farmers	-7066	0.66	(43.6)	0.82
Fishermen	-7748	0.78	(27.7)	0.84
Craftsmen	-8056	0.64	(14.6)	0.73
Office Workers	-14522	0.76	(9.7)	0.74
Entrepreneurs	-10160	0.72	(17.3)	0.79
Professionals	-17430	0.89	(8.9)	0.87
Others	-12130	0.84	(22.8)	0.86
FARM SIZE (Has.)				
<1.0	-8240	0.78	(56.2)	0.82
1.0 - 1.9	-7068	0.85	(35.3)	0.84
2.0 - 2.9	-5771	0.56	(8.1)	0.48
3.0 - 3.9	-8530	0.72	(11.7)	0.80
4.0 - 4.9	-9805	0.72	(20.5)	0.83
>5.0	-9258	0.73	(19.1)	0.84

* These are estimates of the linear saving function:

$$S = a + b\,Y$$

Where: S = saving
Y = total current income
a = intercept
b = Marginal Propensity to Save

** Figures in parentheses are the t-values.

Source: Rodriguez, Jocelyn A., "Saving Behavior and Portfolio Choice among Rural Households in the Philippines," 1988 (forthcoming M.A. Thesis, University of the Philippines, School of Economics).

Appendix 3A

RESULTS OF REGRESSION ESTIMATION BY OLS
FOR DETERMINANTS OF SAVING BEHAVIOR

Variables	Coefficient	t-Ratio
Model 1		
Intercept	48.081	0.035
Current Income	0.728	70.348 *
Wealth	0.029	10.014 *
Education	-2073.843	-5.453 *
Occupation	726.042	4.603 *
Dependency Ratio	-509.339	-0.380
R-Square	0.850	
Adjusted R-Square	0.850	
Model 2		
Intercept	18532.896	1.538
Permanent Income	0.602	11.350 *
Transitory Income	0.751	24.869 *
R-Square	0.837	
Adjusted R-Square	0.834	
Model 3		
Intercept	27692.283	2.258
Permanent Income	0.631	11.689 *
Transitory Income	0.756	25.302 *
Education	-1202.252	-1.101 **
Occupation	881.206	1.850 *
Dependency Ratio	-10457.682	-1.650 *
R-Square	0.846	
Adjusted R-Square	0.841	

* Significant at the 5% level.

** Significant at the 10% level.

Source: Rodriguez, Jocelyn Alma A., "Saving Behavior and Portfolio Choice among Rural Households in the Philippines," 1988 (forthcoming M. A. Thesis, University of the Philippines School of Economics).

Appendix 3B

DETERMINANTS OF DEPOSIT: RESULTS OF REGRESSION ESTIMATION BY OLS

Variables		Coefficient	t-Ratio
Model 1			
Dependent Variable:	Bank and Non-Bank Deposits		
Explanatory Variables:	Intercept	-51100.318	-3.060
	Permanent Income	0.065	2.205 *
	Transitory Income	0.017	1.173 **
	Interest Rate (Time Deposit)	4194.65	2.752 *
	Transaction Cost	-4.055	-0.293
	R-Square	0.126	
	Adjusted R-Square	0.089	
Model 2			
A. Dependent Variable:	Bank Deposits		
Explanatory Variables:	Intercept	7308.329	-0.084
	Permanent Income	0.031	2.187 *
	Transitory Income	0.016	0.925
	Interest Rate (Saving Deposit)	213.112	-0.257
	Transaction Costs	14.462	-0.375
B.	Intercept	16794.955	-0.037
	Permanent Income	0.030	2.186 *
	Transitory Income	0.014	1.180 **
	Interest Rate (Time Deposit)	1532.203	2.737 *
	Transaction Costs	-13.928	-0.301

* Significant at the 5% level.

** Significant at the 10% level.

Source: Rodriguez, Jocelyn Alma A., "Saving Behavior and Portfolio Choice among Rural Households in the Philippines," 1988 (forthcoming M. A. Thesis, University of the Philippines School of Economics).

Appendix 4

ESTIMATION OF PERMANENT INCOME

Following Bhalla (1977) and Hyun, Adams and Hushak (1977), this study uses cross-section data to estimate permanent income. The method employed was based on the statistical model suggested by Hyun, et al. Certain "permanent" characteristics of households were regressed against current disposable income (Y) in order to predict permanent income. These characteristics are: value of physical assets (INV) and financial assets (LIQA), the educational attainment of the household heads (EDUC), household size (A9), dependency ratio (DEPR) and major occupation of the household (OCCUP). The ordinary least squares (OLS) technique was used. The regression results are as follows:

$$
\begin{aligned}
Y = {} & 15730.85 + 0.08\ INV + 0.11\ LIQA \\
& \quad (1.20) \qquad (5.60) \qquad (1.219) \\
& + 1219.70\ A9 + 6086.45\ DEPR \\
& \quad (1.02) \qquad (0.310) \\
& - 766.34\ EDUC + 488.224\ OCCUP \\
& \quad (-1.07) \qquad (0.38)
\end{aligned}
$$

$R^2 = .25$

F value = 7.64

The figures in parentheses are the t-values.

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